

REMARKS

The title of the invention has been amended. The limitations of claim 2 have been combined with claim 1. Claim 2 has been canceled and the dependencies of claims 3 and 4 have been corrected.

Claims 1 and 3-21 are pending in the application. They stand rejected under 35 U.S.C. 102(a) as being anticipated by van Cleeff (WO 99/55746) and under 35 U.S.C. 102(b) as being anticipated by Kahn (US 4,524,197). The title of the invention was objected to for being not descriptive of the invention.

The title of the invention has been amended, per the examiner's suggestion, in order to make it more descriptive.

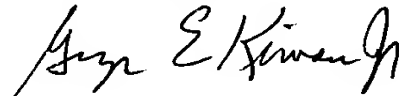
Applicants' invention, as defined in amended Claim 1, is an emulsion polymerization process for manufacturing an isolated fluoroelastomer. The process employs a fluorinated sulfonate surfactant of the formula $F-(CF_2CF_2)_n-CH_2CH_2SO_3M$ where n is an integer from 2 to 9, or mixtures thereof, and M is a cation having a valence of 1. Fluoroelastomer is isolated from the dispersion by addition of a coagulating agent (step D of amended Claim 1).

The van Cleeff reference discloses processes for the manufacture of fluoroelastomer latices (or emulsions), not isolated fluoroelastomers. In a latex, it is preferred that elastomer particles not readily separate from the aqueous medium, whereas Applicants desire to separate the fluoroelastomer from water. The processes disclosed in van Cleeff lack step D) of amended Claim 1 of the present invention. Due to this difference, Applicants assert that van Cleeff cannot anticipate the present invention.

If a fluoroelastomer is to be sold as a polymer crumb, gum, or precompound (rather than a latex), it must be coagulated and isolated from the aqueous dispersion. Many surfactants which are suitable for use in the manufacture of fluoroelastomer emulsions (i.e. the surfactants prevent reactor fouling and provide good colloidal stability), are unsuitable for the isolation step. Surfactants which may be present during isolation are those which are readily separated from the fluoroelastomer. Surfactants which form precipitates with the coagulation agent or which have strong affinity for the elastomer become entrained in the fluoroelastomer crumb or gum and may adversely affect fluoroelastomer processability (e.g. sheeting, pellet formation, and mixing), vulcanization and the physical properties of vulcanized elastomers.

Khan discloses the polymerization of fluoroelastomers in the presence of a fluorosulfate surfactant ($\text{F}-(\text{CF}_2\text{CF}_2)_n-\text{CH}_2\text{CH}_2-\text{O}-\text{SO}_3\text{M}$), not the fluorosulfonate ($\text{F}-(\text{CF}_2\text{CF}_2)_n-\text{CH}_2\text{CH}_2-\text{SO}_3\text{M}$) surfactant employed in the instant invention. Sulfate surfactants exhibit higher chain transfer reactivity during polymerization than do sulfonate surfactants. High chain transfer activity limits the maximum achievable fluoroelastomer molecular weight and slows polymerization rate when a fluorosulfate is used as the surfactant for the polymerization of fluoroelastomers. Due to this difference in surfactants, Applicants believe that Khan cannot anticipate the instant invention.

In view of the above amendments and remarks, Applicants believe that claims 1 and 3-21 are patentable and that the application is in condition for allowance. Reconsideration is requested.



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